AMENDMENT TO THE SPECIFICATION:

On page 1, lines 3-7:

~~This application is a Continuation-in-Part of United States Patent Application Serial No. 533,245 filed June 4, 1990 which in turn is a continuation-in-part of United States Patent Application Serial No. 406,945 filed September 13, 1989.~~ This application is a divisional of USSN 07/720,282 filed June 24, 1991 (abandoned); which is a continuation-in-part of USSN 07/533,245 filed June 4, 1990 (which is now U.S. Patent No. 5,055,438); which is a continuation-in-part of USSN 07/406,945 filed September 13, 1989 (abandoned).

On page 4, lines 31-35:

~~The degree and type of tacticity of a polyolefin molecule are critical determinants of the physical properties which a resin composed of such polymer molecules will exhibit. Other critical determinants of the properties which a resin will exhibit are the type~~ The degree and type of tacticity of a polyolefin molecule are critical determinants of the physical properties which a resin composed of such polymer molecules will exhibit. Other critical determinants of the properties which a resin will exhibit are the type

On page 4, lines 31-35:

~~Atactic poly-α-olefins are those wherein the hydrocarbyl groups pendent to the polymer molecule backbone assume no regular order in space with reference to the backbone. This random, or atactic, structure is represented by a polymer backbone of alternating~~ Atactic poly-α-olefins are those wherein the hydrocarbyl groups pendent to the polymer molecule backbone assume no regular order in space with reference to the backbone. This random, or atactic, structure is represented by a polymer backbone of alternating

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On page 10, lines 26-35:

~~For any of the above described materials the final resin properties and their suitability for particular applications depends on the type of tacticity, the melting point (stereoregularity), the average molecular weight, the molecular weight distribution, the type and level of monomer and comonomer, the sequence distribution, and the presence or absence of head or end group functionality. Accordingly, the catalyst system by which such a stereoreuglar poly-α-olefins resin is to be produced should desirably be versatile in terms of Mw, MWD,~~ For any of the above described materials the final resin properties and their suitability for particular applications depends on the type of tacticity, the melting point (stereoregularity), the average molecular weight, the molecular weight distribution, the type and level of monomer and comonomer, the sequence distribution, and the presence or absence of head or end group functionality. Accordingly, the catalyst system by which such a stereoreuglar poly-α-olefins resin is to be produced should desirably be versatile in terms of Mw, MWD,

On page 11, lines 32-35:

~~Catalysts that produce isotactic polyolefins are also disclosed in Patent No. 4,794,096. This patent also discloses a chiral, stereorigid metallocene catalyst which is activated by an alumoxane cocatalyst which is~~ Catalysts that produce isotactic polyolefins are also disclosed in Patent No. 4,794,096. This patent also discloses a chiral, stereorigid metallocene catalyst which is activated by an alumoxane cocatalyst which is

On page 12, lines 32-35:

~~More recently, a metallocene based catalyst system has been disclosed which is stated to be capable of production of syndiotactic polypropylene of high stereoregularity. U.S. Patent No., 4,892,851 describes~~ More recently, a metallocene based catalyst system has been disclosed which is stated to be capable of production of syndiotactic polypropylene of high stereoregularity. U.S. Patent No., 4,892,851 describes

On page 15, lines 33-35:

~~L is a neutral Lewis base such as diethylether, tetraethylammonium chloride, tetrahydrofuran, dimethylaniline, aniline, trimethylphosphine, n-~~L is a neutral Lewis base such as diethylether, tetraethylammonium chloride, tetrahydrofuran, dimethylaniline, aniline, trimethylphosphine, n-

On page 18, lines 33-35:

~~($C_5H_{4-x}R_x$) is a cyclopentadienyl ring which is substituted with from zero to four substituent groups R, "x" is 0, 1, 2, 3, or 4 denoting the degree of substitution, and each substituent group R is, independently, a radical selected from a group consisting of C_1-C_{20} hydrocarbyl radicals, substituted C_1-C_{20} hydrocarbyl radicals wherein one or more hydrogen atoms is replaced by a halogen radical, an amido radical, a phosphido radical, and alkoxy radical or other~~ ($C_5H_{4-x}R_x$) is a cyclopentadienyl ring which is substituted with from zero to four substituent groups R, "x" is 0, 1, 2, 3, or 4 denoting the degree of substitution, and each substituent group R is, independently, a radical selected from a group consisting of C_1-C_{20} hydrocarbyl radicals, substituted C_1-C_{20} hydrocarbyl radicals wherein one or more hydrogen atoms is replaced by a halogen radical, an amido radical, a phosphido radical, and an alkoxy radical or other

On page 19, lines 34-35:

~~T is a covalent bridging group containing a Group IV A or V A element such as, but not limited to, a dialkyl,~~T is a covalent bridging group containing a Group IV A or V A element such as, but not limited to, a dialkyl,

On page 21, lines 22-35:

~~Suitable hydrocarbyl and substituted hydrocarbyl radicals, which may be substituted as an R group for at least one hydrogen atom in the cyclopentadienyl ring, will contain from 1 to about 20 carbon atoms and include straight and branched alkyl radicals, cyclic hydrocarbon radicals, alkyl-substituted cyclic hydrocarbon radicals,~~

~~aromatic radicals, and alkyl-substituted aromatic radicals, amido-substituted hydrocarbon radicals, phosphido-substituted hydrocarbon radicals, alkoxy-substituted hydrocarbon radicals, and cyclopentadienyl rings containing one or more fused saturated or unsaturated rings. Suitable organometallic radicals, which may be substituted as an R group for at least one hydrogen atom in the cyclopentadienyl ring, include~~ Suitable hydrocarbyl and substituted hydrocarbyl radicals, which may be substituted as an R group for at least one hydrogen atom in the cyclopentadienyl ring, will contain from 1 to about 20 carbon atoms and include straight and branched alkyl radicals, cyclic hydrocarbon radicals, alkyl-substituted cyclic hydrocarbon radicals, aromatic radicals, and alkyl substituted aromatic radicals, amido-substituted hydrocarbon radicals, phosphido-substituted hydrocarbon radicals, alkoxy-substituted hydrocarbon radicals, and cyclopentadienyl rings containing one or more fused saturated or unsaturated rings. Suitable organometallic radicals, which may be substituted as an R group for at least one hydrogen atom in the cyclopentadienyl ring, include

On page 22 lines 13-25:

~~Suitable hydrocarbyl and substituted hydrocarbyl radicals, which may be substituted as an R^1 group for at least one hydrogen atom in the heteroatom J ligand group, will contain from 1 to about 20 carbon atoms and include straight and branched alkyl radicals, cyclic hydrocarbon radicals, alkyl-substituted cyclic hydrocarbon radicals, aromatic radicals and alkyl substituted aromatic radical, halogen radicals, amido radicals, phosphido radicals and the like. Examples of heteroatom ligand groups (JR^1$_{z-2}$) which are suitable as a constituent group of the Group IV B transition metal component of the catalyst system are identified in column 3 of Table 1 under the heading (JR^1$_{z-2}$).~~ Suitable R^1 radicals of the heteroatom J ligand are independently a hydrocarbyl radical selected from a group consisting of 1 to about 20 carbon atoms and include straight and branched alkyl radicals, cyclic hydrocarbon radicals, alkyl-substituted cyclic hydrocarbon radicals, aromatic radicals and the like; substituted C_1-C_{20} hydrocarbyl radicals wherein one or more hydrogen atom is replaced by a halogen radical, an amido radical, a phosphido

radical, an alkoxy radical, or a radical containing a Lewis acidic or basic functionality, and the like. Examples of heteroatom ligand groups (JR^1_{z-2}) which are suitable as a constituent group of the Group IV B transition metal component of the catalyst system are identified in column 3 of Table 1 under the heading (JR^1_{z-2}).

On page 22, lines 26-35:

~~Table 1 depicts representative constituent moieties for the "Group IV B transition metal component", the list is for illustrative purposes only and should not be construed to be limiting in any way. A number of final components may be formed by permuting all possible combinations of the constituent moieties with each other. Illustrative compounds are: dimethylsilylfluorenyl-t-butylamido zirconium dichloride, dimethylsilylfluorenyl-t-butylamido hafnium dichloride, dimethylsilylfluorenylcyclohexylamidozirochiumdihalides~~ Table 1 depicts representative constituent moieties for the "Group IV B transition metal component", the list is for illustrative purposes only and should not be construed to be limiting in any way. A number of final components may be formed by permuting all possible combinations of the constituent moieties with each other. Illustrative compounds are: dimethylsilylfluorenyl-t-butylamido zirconium dichloride, dimethylsilylfluorenyl-t-butylamido hafnium dichloride, dimethylsilylfluorenylcyclohexylamidozirochiumdihalides

On page 28, lines 33-35:

~~The catalyst system may be conveniently prepared by placing the selected Group IV B transition metal component and the selected alumoxane component in any~~ The catalyst system may be conveniently prepared by placing the selected Group IV B transition metal component and the selected alumoxane component in any

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On page 30 lines 24-35:

~~In a preferred embodiment of the process of this invention, the catalyst system is utilized in the liquid phase (slurry, solution, suspension or bulk phase or combination thereof), high pressure fluid phase or gas phase polymerization of an α-olefin monomer. These processes may be employed singularly or in series. The liquid phase process comprises the steps of contacting an α-olefin monomer with the catalyst system in a suitable polymerization diluent and reacting said monomer in the presence of said catalyst system for a time and at a temperature sufficient to produce a poly-α-olefin of high crystallinity and molecular weight.~~ <u>In a preferred embodiment of the process of this invention, the catalyst system is utilized in the liquid phase (slurry, solution, suspension or bulk phase or combination thereof), high pressure fluid phase or gas phase polymerization of an α-olefin monomer. These processes may be employed singularly or in series. The liquid phase process comprises the steps of contacting an α-olefin monomer with the catalyst system in a suitable polymerization diluent and reacting said monomer in the presence of said catalyst system for a time and at a temperature sufficient to produce a poly-α-olefin of high crystallinity and molecular weight.</u>

On page 31, lines 29-35:

~~By appropriate selection of (1) Group IV B transition metal component for use in the catalyst system; (2) the type and amount of alumoxane used; (3) the polymerization diluent type and volume; (4) reaction temperature; and (5) reaction pressure, one may tailor the product polymer to the weight average molecular weight value desired while still maintaining the~~ <u>By appropriate selection of (1) Group IV B transition metal component for use in the catalyst system; (2) the type and amount of alumoxane used; (3) the polymerization diluent type and volume; (4) reaction temperature; and (5) reaction pressure, one may tailor the product polymer to the weight average molecular weight value desired while still maintaining the</u>

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On page 33, lines 31-35:

~~Compound A: Part 1. Me₂SiCl₂ (7.5 ml, 0.062 mol) was diluted with ~30 ml of THF. A t-BuH₄C₅Li solution (7.29 g, 0.057 mol, ~100 ml of thf) was slowly added, and the resulting mixture was allowed to stir overnight. The thf was removed in vacuo. Pentane was added~~ Compound A: Part 1. Me₂SiCl₂ (7.5 ml, 0.062 mol) was diluted with ~30 ml of THF. A t-BuH₄C₅Li solution (7.29 g, 0.057 mol, ~100 ml of THF) was slowly added, and the resulting mixture was allowed to stir overnight. The THF was removed in vacuo. Pentane was added

On page 34, lines 32-35:

~~Compound B: Part 1. Me₂SiCl₂ (210 ml, 1.25 mol) was diluted with a mixture of ether and thf. LiMeC₅H₄ (25 g, 0.29 mol) was slowly added, and the resulting mixture was allowed to stir for a few hours, after which~~ Compound B: Part 1. Me₂SiCl₂ (210 ml, 1.25 mol) was diluted with a mixture of ether and THF. LiMeC₅H₄ (25 g, 0.29 mol) was slowly added, and the resulting mixture was allowed to stir for a few hours, after which

On page 38, lines 28-35:

~~Compound G: Part 1. LiC₉H₇ (40 g, 0.33 mol, lithiated indene = Li(Hind)) was slowly added to Me₂SiCl₂ (60 ml, 0.49 mol) in ether and THF. The reaction was allowed to stir for 1.5 hours prior to removing the solvent via vacuum. Petroleum ether was then added, and LiCl was filtered off. The solvent was removed from the filtrate via vacuum, leaving behind the pale yellow liquid, (Hind)Me₂SiCl (55:1 g, 0.27 mol).~~ Compound G: Part 1. LiC₉H₇ (40 g, 0.33 mol, lithiated indene = Li(Hind)) was slowly added to Me₂SiCl₂ (60 ml, 0.49 mol) in ether and THF. The reaction was allowed to stir for 1.5 hours prior to removing the solvent via vacuum. Petroleum ether was then added, and LiCl was filtered off. The solvent was removed from the filtrate via vacuum, leaving behind the pale yellow liquid, (Hind)Me₂SiCl (55:1 g, 0.27 mol).

On page 40, lines 34-35:

~~Part 2. Me₂Si(MeC₅H₄)Cl (10.0 g, 0.058 mol) was diluted with ether.~~ ~~LiHNC₆H₁₁ (6.1 g, 0.58 mol) was~~ Part 2.   Me$_2$Si(MeC$_5$H$_4$)Cl (10.0 g, 0.058 mol) was diluted with ether. LiHNC$_6$H$_{11}$ (6.1 g, 0.58 mol) was

On page 41, lines 29-35:

~~Part 2. Me₂Si(MeC₅H₄)Cl (10.0 g, 0.059 mol) was diluted with ether. LiHN-2,5-t-Bu₂C₆H₃(12.2 g, 0.58 mol) was slowly added and the mixture was allowed to stir overnight. The solvent was removed via vacuum and toluene was added to precipitate the LiCl. The toluene was removed from the filtrate leaving behind a pale yellow liquid, Me₂Si(MeC₅H₄)(HN-2,5-t-Bu₂C₆H₃). The yield~~ Part 2.   Me$_2$Si(MeC$_5$H$_4$)Cl (10.0 g, 0.059 mol) was diluted with ether. LiHN-2,5-t-Bu$_2$C$_6$H$_3$(12.2 g, 0.58 mol) was slowly added and the mixture was allowed to stir overnight. The solvent was removed via vacuum and toluene was added to precipitate the LiCl. The toluene was removed from the filtrate leaving behind a pale yellow liquid, Me$_2$Si(MeC$_5$H$_4$)(HN-2,5-t-Bu$_2$C$_6$H$_3$). The yield

On page 42, lines 34-35:

~~Using the same reactor design and general procedure already described, 100 ml of toluene, 100 ml~~ Using the same reactor design and general procedure already described, 100 ml of toluene, 100 ml

On page 43, lines 28-35:

~~Using the same reactor design and general procedure already described, 100 ml of toluene, 200 ml of propylene, 5 ml of 1.0 M MAO, and 6.4 mg of compound D (5 ml of 12.4 mg of compound D in 10 ml of toluene) were added to the reactor. The reactor was heated at 30°C and the reaction was allowed to run for one hour, followed by rapidly cooling and venting system. The polymer was precipitated out and filtered off giving 1.4 g of crystalline polypropylene (MW = 76,900, MWD = 1.553, m =~~ Using the same

reactor design and general procedure already described, 100 ml of toluene, 200 ml of propylene, 5 ml of 1.0 M MAO, and 6.4 mg of compound D (5 ml of 12.4 mg of compound D in 10 ml of toluene) were added to the reactor. The reactor was heated at 30°C and the reaction was allowed to run for one hour, followed by rapidly cooling and venting system. The polymer was precipitated out and filtered off giving 1.4 g of crystalline polypropylene (MW = 76,900, MWD = 1.553, m =

On page 44, lines 22-35:

~~Using the same reactor design and general procedure already described, 200 ml of toluene, 200 ml of propylene, 5.0 ml of 1.0 M MAO, and 5.5 mg of compound G (5.0 ml) of 11.0 mg of compound G in 10 ml of toluene)~~ Using the same reactor design and general procedure already described, 200 ml of toluene, 200 ml of propylene, 5.0 ml of 1.0 M MAO, and 5.5 mg of compound G (5.0 ml) of 11.0 mg of compound G in 10 ml of toluene)